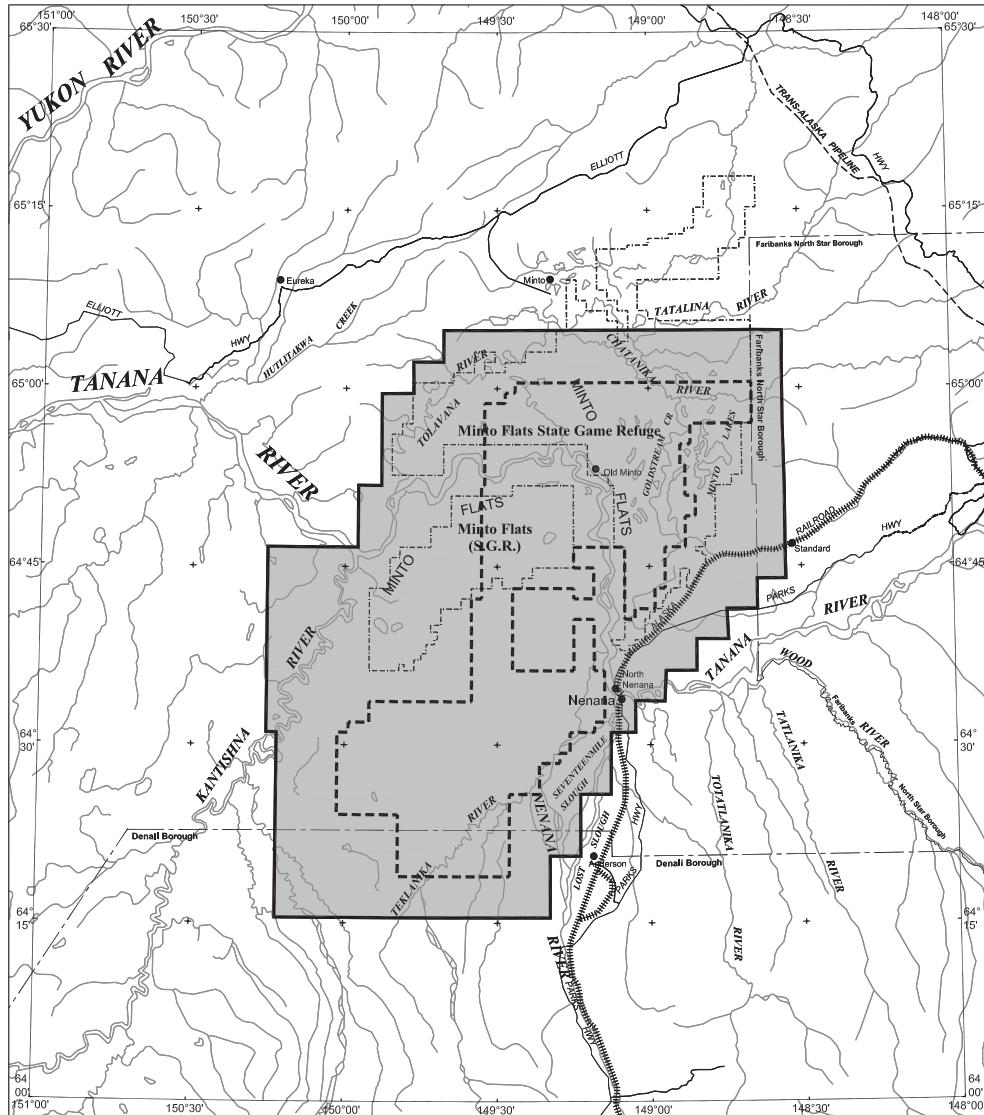


Nenana Basin Oil and Gas Exploration License

Final Finding of the Director

August 22, 2002



Alaska Department of
**NATURAL
RESOURCES**
DIVISION OF OIL & GAS

**Final Best Interest Finding
Nenana Basin**

Prepared by

**Alaska Department of Natural Resources
Division of Oil and Gas**

**Anchorage Alaska
August 22, 2002**

This publication was produced by the Department of Natural Resources, Division of Oil and Gas. It was printed at the cost of \$7.15 per copy. The purpose of the publication is to meet the mandate of AS 38.05.035(e).

Printed in Anchorage Alaska.

Table of Contents

Chapter One: Introduction.....	1-1
A. Exploration Licensing	1-1
B. Nenana Basin Exploration License.....	1-6
C. Governmental Powers to Regulate Oil and Gas Exploration, Development, Production, and Transportation	1-8
Chapter Two: Property Description, Geology and Petroleum Potential	2-1
A. Property Description	2-1
B. Surface and Subsurface Ownership.....	2-1
C. Minto Flats State Game Refuge	2-2
D. Geology	2-7
E. Exploration History.....	2-9
F. Petroleum Potential.....	2-9
Chapter Three: Habitat, Fish, and Wildlife	3-1
A. Habitat.....	3-1
B. Fish and Wildlife Populations.....	3-2
Chapter Four: Current and Projected Use of the Study Area	4-1
A. Communities	4-1
B. Transportation.....	4-2
C. Tourism.....	4-3
D. Tanana Basin Area Plan.....	4-3
E. Recreational Activity	4-3
F. Forestry	4-6
G. Subsistence	4-9
Chapter Five: Reasonably Foreseeable Effects of Licensing and Subsequent Activity.....	5-1
A. Post Licensing Phases	5-2
B. Statewide Fiscal Effects.....	5-7
C. Effects on Municipalities and Communities.....	5-10
D. Cumulative Effects.....	5-14
Chapter Six: Specific Issues Related to Oil and Gas Exploration, Development, Production and Transportation	6-1
A. Geophysical Hazards	6-1
B. Likely Methods of Transportation.....	6-4
C. Oil Spill Prevention.....	6-5
Chapter Seven: Mitigation Measures and Licensee Advisory	7-1
A. Mitigation Measures.....	7-2
B. Licensee Advisory.....	7-7
Chapter Eight: Conclusion, Summary and Signatures	8-1
A. Reasonably Foreseeable Effects of Exploration Licensing and their Mitigation	8-1
B. Cumulative Effects and their Mitigation	8-2
C. Specific Issues Related to Oil and Gas Exploration, Development, Production and Transportation	8-4
D. Summary and Signatures	8-5
Appendix A: Summary of Comments and Responses	A-1
Appendix B: Laws and Regulations Pertaining to Oil and Gas Exploration, Development, Production and Transportation	B-1
Appendix C: Sample License Agreement.....	C-1
Appendix D: Sample Conversion Lease	D-1
Appendix E: Directional and Extended-Reach Drilling	E-1
Appendix F: References	F-1

List of Figures

Figure 1.1 Nenana Basin Study Area	1-3
Figure 1.2 Nenana Basin Exploration Licensing Public Process.....	1-7
Figure 2.1 Native Lands Subsurface Ownership	2-4
Figure 2.2 Minto Flats State Game Refuge	2-5
Figure 2.3 Native Allotments Within Minto Flats State Game Refuge.....	2-6
Figure 2.4 Thickness of Sedimentary Basin (Tertiary)	2-8
Figure 3.1 Ducks and Geese	3-11
Figure 3.2 Moose	3-17
Figure 3.3 Brown Bear	3-18
Figure 4.1 Minto Flats Management Area and Nenana Controlled Use Area.....	4-7
Figure 4.2 Tanana Valley State Forest.....	4-8
Figure 5.1 Drill Site Block Diagram.....	5-5
Figure 5.2 Marathon's Sterling Production Facility	5-6
Figure 5.3 Typical Trench Section	5-7
Figure 5.4 Historic Alaska Petroleum Revenue.....	5-9
Figure 5.5 Historic and Projected Alaska Oil Production.....	5-9
Figure 5.6 Alaska Permanent Fund Dividends (1982-2001)	5-10
Figure 6.1 Historic Seismicity of the Nenana Basin Study Area.....	6-2
Figure E1 Multi-Lateral Wellbore Completions.....	E-3
Figure E2 Well "Reach" vs Time (in Alaska).....	E-3

List of Tables

Table 1.1 Typical Permit Process - Exploration Wells - Interior Basin	1-9
Table 2.1 Geologic Time.....	2-7
Table 3.1 Fishbearing Waterbodies in and Near the Study Area	3-5
Table 3.2 Birds Commonly Observed in the Vicinity of the Study Area	3-12
Table 5.1 Potential Effects of Oil and Gas Exploration.....	5-2
Table 5.2 Exploration, Development, and Production Phase Activities.....	5-3
Table 5.3 Fairbanks North Star Borough Average Monthly Employment and Earnings, 1999	5-11
Table 5.4 Denali Borough Average Monthly Employment and Earnings, 1999	5-11
Table 5.5 Estimated Total Bills for Residential Space and Water Heating by Fuel Type.....	5-12
Table 5.6 Average Monthly Use and Cost by Enstar and FNG Customers	5-13

List of Abbreviations

AAC	Alaska Administrative Code	DO&G	Division of Oil and Gas
ACMP	Alaska Coastal Management Plan	DPOR	Division of Parks and Outdoor Recreation
ADCED	Alaska Department of Community and Economic	EIS	Environmental Impact Statement
ADEC	Alaska Department of Environmental Conservation	gal	Gallon(s)
ADF&G	Alaska Department of Fish and Game	m	Meter
AOGCC	Alaska Oil and Gas Conservation Commission	MMS	Minerals Management Service
ADNR	Alaska Department of Natural Resources	MFSGR	Minto Flats State Game Refuge
AS	Alaska Statute	RCRA	Resource Conservation and Recovery Act
Bbl	Barrel (42 gallons)	SPCC	Spill Prevention Control and Countermeasure
bpd	Barrels per day	SHPO	State Historic Preservation Officer
BIA	U.S. Bureau of Indian Affairs	USACE	U.S. Army Corps of Engineers
BLM	U.S. Bureau of Land Management	USC	United States Code
DF	Division of Forestry	USDOI	United States Department of the Interior
DGC	Division of Governmental Coordination	USF&WS	United States Fish and Wildlife Service
DMLW	Division of Mining, Land, and Water		

Metric and Standard Conversion Tables

To Metric		From Metric	
Feet	Meters	Meters	Feet
1	0.3	1	3.2
2	0.6	2	6.6
3	0.9	3	9.8
4	1.2	4	13.1
5	1.5	5	16.4
6	1.8	6	19.6
7	2.1	7	23
8	2.4	8	26.2
9	2.7	9	29.5
10	3	10	32.8
20	6	20	66
30	9	30	98
40	12	40	131
50	15	50	164
60	18	60	197
70	21	70	230
80	24	80	262
90	27	90	295
100	30	100	328
200	61	200	656
300	91	300	984
400	122	400	1312
500	152	500	1640
1000	305	1000	3281
1500	457	1500	4921

To Metric		From Metric	
Miles	Kilometers	Kilometers	Miles
1	1.6	1	0.6
2	3.2	2	1.2
3	4.8	3	1.9
4	6.4	4	2.5
5	8	5	3.1
6	9.7	6	3.7
7	11.3	7	4.3
8	12.9	8	5
9	14.5	9	5.6
10	16	10	6.2
20	32	20	12
30	48	30	19
40	64	40	25
50	80	50	31
60	97	60	37
70	113	70	43
80	129	80	50
90	145	90	56
100	161	100	62

